A resource for the conditional ablation of microRNAs in the mouse.

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Public Summary:
The importance of miRNAs during development and disease processes is well established. However, most studies have been done in cells or with patient tissues, and therefore the physiological roles of miRNAs are not well understood. To unravel in vivo functions of miRNAs, we have generated conditional, reporter-tagged knockout-first mice for numerous evolutionarily conserved miRNAs. Here, we report the generation of 162 miRNA targeting vectors, 64 targeted ES cell lines, and 46 germline-transmitted miRNA knockout mice. In vivo lacZ reporter analysis in 18 lines revealed highly tissue-specific expression patterns and their miRNA expression profiling matched closely with published expression data. Most miRNA knockout mice tested were viable, supporting a mechanism by which miRNAs act redundantly with other miRNAs or other pathways. These data and collection of resources will be of value for the in vivo dissection of miRNA functions in mouse models.

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